INTEGRATED MONITOR AND DOCKING STATION

BACKGROUND OF THE INVENTION

[0001] Traditionally a portable computer docking station requires a separate external monitor to be connected (e.g., by cable) to the docking station when a display other than the integrated display of the portable computer is desired to be used with the docking station. Often a significant amount of desk space is required for placement of this docking station and separate display. Attempts have been made to conserve the required amount of desk space by allowing the external display to be stacked on top of the docking station. However, the stacked combination still occupies a large amount of space and is cumbersome to move and transport. Therefore there exists a need for a docking station and display combination that is configured in a more efficient form.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] Various embodiments of the invention are disclosed in the following detailed description and the accompanying drawings.

[0003] FIGS. **1**A-**1**D illustrate an embodiment of a docking station.

[0004] FIG. **1**A is a diagram illustrating a front view of the docking station.

[0005] FIG. **1**B is a diagram illustrating a rear view of the docking station.

[0006] FIG. **1**C is a diagram illustrating a side view of the docking station without a docked portable computer.

[0007] FIG. **1**D is a diagram illustrating a side view of the docking station with a docked portable computer.

DETAILED DESCRIPTION

[0008] The invention can be implemented in numerous ways, including as a process, an apparatus, a system, a composition of matter, a computer readable medium such as a computer readable storage medium or a computer network wherein program instructions are sent over optical or electronic communication links. In this specification, these implementations, or any other form that the invention may take, may be referred to as techniques. A component such as a processor or a memory described as being configured to perform a task includes both a general component that is temporarily configured to perform the task at a given time or a specific component that is manufactured to perform the task. In general, the order of the steps of disclosed processes may be altered within the scope of the invention.

[0009] A detailed description of one or more embodiments of the invention is provided below along with accompanying figures that illustrate the principles of the invention. The invention is described in connection with such embodiments, but the invention is not limited to any embodiment. The scope of the invention is limited only by the claims and the invention encompasses numerous alternatives, modifications and equivalents. Numerous specific details are set forth in the following description in order to provide a thorough understanding of the invention. These details are provided for the purpose of example and the invention may be practiced according to the claims without some or all of these specific details. For the purpose of clarity, technical material that is known in the technical fields related to the invention has not been described in detail so that the invention is not unnecessarily obscured.

[0010] A docking station is disclosed. In some embodiments, the docking station includes a display and a housing configured to hold the display in a manner that exposes a viewing surface of the display to view. The housing including a docking area configured to receive a portable computer. The docking area is at least partly obscured by the display when viewed from the viewing surface side of the display at an angle substantially orthogonal to the viewing surface. The display is configured to display an image rendered by the portable computer at least when the portable computer is docked in the housing. In some embodiments, when the portable computer is docked in the docking station, a first plane parallel to the viewing surface is substantially parallel to a second plane parallel to a primary plane of the docked portable computer (e.g., largest plane and/or plane parallel to a display integrated with the docked portable computer). In some embodiments, a plane parallel to at least one largest face of an imaginary rectangular polyhedron of the least possible volume that can contain the portable computer docked in the housing is more parallel than normal (i.e., perpendicular) to the direction of gravity.

[0011] FIGS. **1**A-**1**D illustrate an embodiment of a docking station. FIG. **1**A is a diagram illustrating a front view of the docking station. Docking station **102** includes display **104**, housing **106**, and stand **108**. Stand **108** supports docking station **102** on a horizontal surface (e.g. desk). Stand **108** is merely an example. In various embodiments, one or more other types of stands are used to support docking station **102**. In some embodiments, stand **108** is removable. In some embodiments, docking station **102** can be mounted on a vertical surface (e.g., wall) and stand **108** is omitted. In some embodiments housing **106** includes an integrated stand, or a base portion configured to rest on a horizontal surface without requiring a separate stand, and stand **108** is omitted. Dotted box **110** outlines a docking area configured to receive portable computer **112**. Portable computer **112** slides into docking area **110** for docking. In the example shown, docking area **110** is a cavity of docking station **102** at least partially located behind display **104**, such that display **104** is between a user viewing the viewing surface of display **104** and the docked portable computer. In some embodiments, at least a portion of portable computer **112** is obscured when docked. In some embodiments, at least a portion of the materials that define the docking area comprise a heat conductive material that can be used to dissipate heat from portable computer **112**. In various embodiments, heat generated by the docking station and/or the portable computer docked in the docking station is dissipated using one or more of the following included in the docking station: a vent, a fan, a heat sink, and a liquid cooling device. In various embodiments, one or more peripheral devices are integrated into docking station **102**. In the diagram shown, camera **114** is integrated with docking station **102**. Examples of other peripheral devices integrated With docking station **102** include one or more of the following: a speaker, a microphone, a storage device, a memory card reader, a telephonic handset, a battery charger, web cam, and a remote control signal receiver.

[0012] In some embodiments, a coupling interface couples docking station **102** and portable computer **112**. The coupling interface allows one or more the following: communication of data between docking station **102** and a docked